

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau



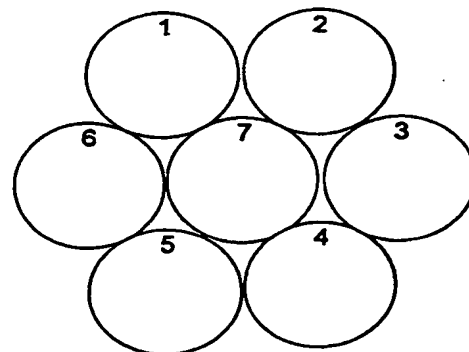
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>6</sup> :</b> <b>H04Q 7/00</b>		<b>A2</b>	<b>(11) International Publication Number:</b> <b>WO 98/39936</b> <b>(43) International Publication Date:</b> 11 September 1998 (11.09.98)
<b>(21) International Application Number:</b> PCT/GB98/00661 <b>(22) International Filing Date:</b> 3 March 1998 (03.03.98) <b>(30) Priority Data:</b> 97/1819 3 March 1997 (03.03.97) ZA <b>(71) Applicant (for all designated States except US):</b> SALBU RESEARCH AND DEVELOPMENT (PROPRIETARY) LIMITED [ZA/ZA]; Portion 86-87 of Farm Doornkloof, Pretoria 0002 (ZA). <b>(71) Applicant (for IS only):</b> TOMLINSON, Kerry, John [GB/GB]; 79 Hove Park Road, Hove, East Sussex BN3 6LL (GB). <b>(72) Inventor; and</b> <b>(75) Inventor/Applicant (for US only):</b> LARSEN, James, David [ZA/ZA]; Portion 86-87 of Farm Doornkloof, Pretoria 0002 (ZA). <b>(74) Agent:</b> TOMLINSON, Kerry, John; Frank B. Dehn & Co., 179 Queen Victoria Street, London EC4V 4EL (GB).			<b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>Without international search report and to be republished upon receipt of that report.</i>

**(54) Title:** ENHANCED CELLULAR COMMUNICATION SYSTEM

**(57) Abstract**

A cellular network comprises a plurality of mobile stations and a plurality of base stations. The base stations are located so that each base station has a zone of effective coverage which does not overlap with the zones of effective coverage of adjacent base stations. Thus, there are zones of reduced coverage between the base stations. When a sender station which is outside the zone of effective coverage of a particular base station wishes to send a message to that base station, the message is relayed by another mobile station to the destination base station. The relaying station may be located within the zone of effective coverage, or in the zone of reduced coverage of the destination base station. The sender station, the destination station and the relaying station(s) can all be mobile stations located in zones of reduced coverage. In the zones of reduced coverage, resources such as transmission power, transmission time-slots and frequency channels are utilised on a reduced basis, effectively sharing the resources between the stations.



**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
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BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
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CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
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DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

## PCT



<b>(51) International Patent Classification <sup>6</sup> :</b> <b>H04L 12/56, H04Q 7/36, H04B 7/26</b>	<b>A3</b>	<b>(11) International Publication Number: WO 98/39936</b>
		<b>(43) International Publication Date: 11 September 1998 (11.09.98)</b>

(74) Agent: TOMLINSON, Kerry, John; Frank B. Dehn & Co., 179 Queen Victoria Street, London EC4V 4EL (GB).

**(81) Designated States:** AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).

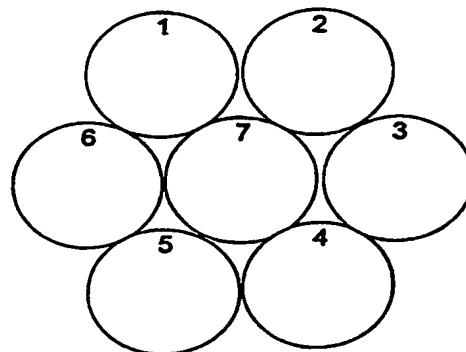
*With international search report.*

**(88) Date of publication of the international search report:**  
3 December 1998 (03.12.98)

**(54) Title: CELLULAR COMMUNICATION SYSTEM WITH MOBILE STATIONS ACTING AS RELAY STATIONS**

**(57) Abstract**

A cellular network comprises a plurality of mobile stations and a plurality of base stations. The base stations are located so that each base station has a zone of effective coverage which does not overlap with the zones of effective coverage of adjacent base stations. Thus, there are zones of reduced coverage between the base stations. When a sender station which is outside the zone of effective coverage of a particular base station wishes to send a message to that base station, the message is relayed by another mobile station to the destination base station. The relaying station may be located within the zone of effective coverage, or in the zone of reduced coverage of the destination base station. The sender station, the destination station and the relaying station(s) can all be mobile stations located in zones of reduced coverage. In the zones of reduced coverage, resources such as transmission power, transmission time-slots and frequency channels are utilised on a reduced basis, effectively sharing the resources between the stations.



**FOR THE PURPOSES OF INFORMATION ONLY**

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DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

# INTERNATIONAL SEARCH REPORT

national Application No

PCT/GB 98/00661

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 H04L12/56 H04Q7/36 H04B7/26

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 481 539 A (HERSHEY JOHN E ET AL) 2 January 1996  see column 3, line 17 - column 8, line 37 ----	1-5, 9, 11, 12, 14, 18, 20, 21
A	GB 2 291 564 A (NEC CORPORATION) 24 January 1996  see page 5, line 18 - page 16, line 17 ----	1-4, 9, 11, 12, 14, 18, 20, 21
A	EP 0 689 303 A (ALCATEL BELL-SDT S.A.) 27 December 1995 see column 3, line 35 - column 7, line 6 -----	1-4, 11, 14, 20

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

23 September 1998

Date of mailing of the international search report

29/09/1998

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Behringer, L.V.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

national Application No

PCT/GB 98/00661

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5481539 A	02-01-1996	NONE	
GB 2291564 A	24-01-1996	CN 1126415 A JP 8084373 A SG 32405 A	10-07-1996 26-03-1996 13-08-1996
EP 0689303 A	27-12-1995	NONE	

## PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

TOMLINSON, Kerry, John  
Frank B. Dehn & Co.  
179 Queen Victoria Street  
London EC4V 4EL  
ROYAUME-UNI

Date of mailing (day/month/year)

12 August 1999 (12.08.99)

Applicant's or agent's file reference

30.49.67927

## IMPORTANT NOTIFICATION

International application No.

PCT/GB98/00661

International filing date (day/month/year)

03 March 1998 (03.03.98)

## 1. The following indications appeared on record concerning:



the applicant



the inventor



the agent



the common representative

Name and Address

State of Nationality

ZA

State of Residence

ZA

Telephone No.

Facsimile No.

Teleprinter No.

## 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:



the person



the name



the address



the nationality



the residence

Name and Address

LARSEN, Mark, Sievert  
22 Darlington Road  
Lynnwood Manor  
Pretoria 0081  
South Africa

State of Nationality

ZA

State of Residence

ZA

Telephone No.

Facsimile No.

Teleprinter No.

## 3. Further observations, if necessary:

**Additional applicant/inventor for the purposes of the United States of America only.**

## 4. A copy of this notification has been sent to:



the receiving Office



the International Searching Authority



the International Preliminary Examining Authority



the designated Offices concerned



the elected Offices concerned



other:

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Dominique DELMAS

Telephone No.: (41-22) 338.83.38

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

United States Patent and Trademark  
Office  
(Box PCT)  
Crystal Plaza 2  
Washington, DC 20231  
ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

<b>Date of mailing (day/month/year)</b> 28 October 1998 (28.10.98)	
<b>International application No.</b> PCT/GB98/00661	<b>Applicant's or agent's file reference</b> 30.49.67927
<b>International filing date (day/month/year)</b> 03 March 1998 (03.03.98)	<b>Priority date (day/month/year)</b> 03 March 1997 (03.03.97)
<b>Applicant</b> LARSEN, James, David	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
05 October 1998 (05.10.98)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer

Lazar Joseph Panakal

Telephone No.: (41-22) 338.83.38



# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>30.49.67927</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/GB 98/00661</b>	International filing date (day/month/year) <b>03/03/1998</b>	(Earliest) Priority Date (day/month/year) <b>03/03/1997</b>
Applicant <b>SALBU RESEARCH &amp; DEVELOPMENT LTD et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. ☐ Certain claims were found unsearchable (see Box I).

2. ☐ Unity of invention is lacking (see Box II).

3. ☐ The international application contains disclosure of a **nucleotide and/or amino acid sequence listing** and the international search was carried out on the basis of the sequence listing

☐ filed with the international application.

☐ furnished by the applicant separately from the international application,

☐ but not accompanied by a statement to the effect that it did not include matter going beyond the disclosure in the international application as filed.

☐ Transcribed by this Authority

4. With regard to the title, ☐ the text is approved as submitted by the applicant

☒ the text has been established by this Authority to read as follows:

**CELLULAR COMMUNICATION SYSTEM WITH MOBILE STATIONS ACTING AS RELAY STATIONS**

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this International Search Report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is:

Figure No. 3 ☒ as suggested by the applicant.

☐ None of the figures.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

# PATENT COOPERATION TREATY

Fax No: 0171-206 0700

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:	All 13 pages received
Tomlinson, Kerry John FRANK B. DEHN & CO. 179 Queen Victoria Street London EC4V 4EL GRANDE BRETAGNE	FILE 67923 21 JUN 1999 ANSO MD

PCT

- 13 pages -

NOTIFICATION OF TRANSMITTAL OF  
THE INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT  
(PCT Rule 71.1)

Date of mailing (day/month/year)	18.06.99	
<b>IMPORTANT NOTIFICATION</b>		
Applicant's or agent's file reference 30.49.67927		
International application No. PCT/GB98/00661	International filing date (day/month/year) 03/03/1998	Priority date (day/month/year) 03/03/1997
Applicant SALBU RESEARCH & DEVELOPMENT LTD et al.		

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

#### 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/  European Patent Office D-80298 Munich Tel. (+49-89) 2399-0 Tx: 523656 epmu d Fax: (+49-89) 2399-4465	Authorized officer  Ahrens, R <div style="border: 1px solid black; padding: 5px; text-align: center; font-weight: bold;">           COPY FAXED TO BRIGHTON         </div> Tel. (+49-89) 2399-8136
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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 98/00661

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 H04L12/56 H04Q7/36 H04B7/26

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 481 539 A (HERSHEY JOHN E ET AL) 2 January 1996  see column 3, line 17 - column 8, line 37 ---	1-5, 9, 11, 12, 14, 18, 20, 21
A	GB 2 291 564 A (NEC CORPORATION) 24 January 1996  see page 5, line 18 - page 16, line 17 ---	1-4, 9, 11, 12, 14, 18, 20, 21
A	EP 0 689 303 A (ALCATEL BELL-SDT S.A.) 27 December 1995 see column 3, line 35 - column 7, line 6 -----	1-4, 11, 14, 20

☐

Further documents are listed in the continuation of box C.

☒

Patent family members are listed in annex.

\* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&amp;" document member of the same patent family

Date of the actual completion of the international search

23 September 1998

Date of mailing of the international search report

29/09/1998

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Behringer, L.V.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 98/00661

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5481539	A	02-01-1996	NONE	
<hr/>				
GB 2291564	A	24-01-1996	CN 1126415 A	10-07-1996
			JP 8084373 A	26-03-1996
			SG 32405 A	13-08-1996
<hr/>				
EP 0689303	A	27-12-1995	NONE	
<hr/>				

# PATENT COOPERATION TREATY

## PCT

REC'D 23 JUN 1999

WIPO PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 30.49.67927	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB98/00661	International filing date (day/month/year) 03/03/1998	Priority date (day/month/year) 03/03/1997
International Patent Classification (IPC) or national classification and IPC H04L12/56		
Applicant SALBU RESEARCH & DEVELOPMENT LTD et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 7 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand  05/10/1998	Date of completion of this report  18.06.99
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. (+49-89) 2399-0 Tx: 523656 epmu d Fax: (+49-89) 2399-4465	Authorized officer  Dechmann, J-L  Telephone No. (+49-89) 2399 8826 

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB98/00661

**I. Basis of the report**

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

**Description, pages:**

1-24 as originally filed

**Claims, No.:**

1-21 as received on 09/03/1999 with letter of 08/03/1999

**Drawings, sheets:**

1/7-7/7 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB98/00661

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Yes:	Claims	1-21
	No:	Claims	
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-21
Industrial applicability (IA)	Yes:	Claims	1-21
	No:	Claims	

### 2. Citations and explanations

**see separate sheet**

## VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

**see separate sheet**

## VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
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**V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

I

The following documents have been considered for the purposes of this report:

D1: US-A-5 481 539  
D2: GB-A-2 291 564  
D3: EP-A-0 689 303

II

1. Document D2 describes a method for transmitting data between a mobile station (15(2)) located within a zone of reduced coverage and a base station (11), with the help of another mobile station used as a relay (15(1)) (cf. in particular pages 5-6 and figure 1).  
Furthermore, document D2 specifies that, beside such a base station, the mobile communication network may comprise similar base stations which are capable of communication between each other, e.g. through wired cables (cf. end of page 16).

The Applicant is of the opinion that the subject-matter of claim 1 differs from the subject-matter of D2 in that D2 does not explicitly disclose a cellular communication system and furthermore does not envisage the non-overlapping of the zones of the coverage of the different base stations.

Concerning the first point, it is considered that although the word "cellular" is not used expressis verbis in document D2, a network comprising different base stations linked together by radio channels or through wired cables, each base



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station defining a zone of coverage (i.e. a cell), would be, at the date of priority of the invention (1997), understood as a cellular network by a skilled person working in the field of telecommunications. It is impossible to imagine that a skilled person, just because the word cellular is not mentioned, or because no details are given about the handoff between the different cells, would, in 1997, think that all these base stations linked together would not or could not work as a cellular system.

Concerning the second point, it is true that document D2 does not mention that the zones of coverage are not overlapping. However, document D2 does not exclude this possibility either. The Applicant is of the opinion that, because all the "conventional" arrangements have overlapping zones, document D2 has also to be interpreted the same way by the skilled person when considering a plurality of zones working together. In other words, according to the Applicant, there is no suggestion in D2 not to follow these "conventional" arrangements.

This opinion, however, cannot be shared by the International Preliminary Examining Authority in that if the "conventional" arrangements have to have overlapping zones of coverage it is to avoid the existence of dead zones of coverage. However, a skilled person, trying to interpret document D2 in order to position the different zones of coverage between each other, would realize that, in the "unconventional" arrangement of D2, dead zones are not an issue because an extra-zone of coverage is achieved by the use of mobile stations acting as repeaters. In other words, there would be no necessity for the system of D2 to have overlapping zones.

The subject-matter of claim 1, therefore, does not involve an inventive step and the requirements of Article 33(3) of the PCT are not met.

2. Independent claim 13, although phrased as an apparatus claim, is nonetheless a repetition of the subject-matter of claim 1 and hence does not meet the requirements of the PCT for the same reasons.
3. The dependent claims 2 to 12 and 15 to 21 do not seem to contain any subject-matter which, in combination with the subject-matter of the claim on which they

are dependent, would lead to a claim involving inventive activity (Article 33(3) of the PCT).

Their subject-matter is indeed either directly derivable from the above-cited documents or concerns simple embodiments without inventive merit in themselves.

## **VII. Certain defects in the international application**

1. To meet the requirements of Rule 6.3(b) PCT the independent claims should be properly cast in the two-part form, with those features which in combination are part of the prior art (presumably document D2), being placed in the preamble.
2. To meet the requirements of Rule 5.1(a)(ii) PCT, documents D1 to D3 should be identified in the description and the relevant background art disclosed therein should be briefly discussed.
3. Following from the disclosure of document D2, a statement indicating the **technical problem to be solved by the invention** requires revision, which should be effected taking the requirements of Rule 5.1(a)(iii) PCT into account.
4. Reference signs in parentheses should be inserted in all the claims to increase their intelligibility, Rule 6.2(b) PCT. This applies to both the preamble and characterising portion.
5. Figures 8a and 8b do not fulfil the requirements of Rule 11.11 PCT (words in drawings). It is therefore suggested to add reference numerals beside each block of the flow diagrams and to introduce these references in the corresponding description.

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6. The general statement "incorporated herein by reference" in lines 5-6 on page 8 is not clear. Therefore, either a short acknowledgement of the relevant subject-matter of the corresponding document, to which said statement refers, should, in accordance with Article 34(2)(b) PCT, be added to the description, or, if said document is not relevant for the performance of the invention, such statement should be deleted (cf. also PCT Guidelines Chap-II-4.17 and 6.3).